

Inside DTSC – ECL Berkeley Lab

Nats of Xcavator

VO:

DTSC is cleaning up...

Nats of clean up site

VO:

It's a familiar sight right? Loud noises, heavy machinery and holes in the ground...but while these sites all over California can affect your daily commute (**NAT**) there's a lot more than just digging going on. Contaminated soil is being removed from the ground, and miles away DTSC scientists are hard at work identifying the hazardous chemicals in that soil. That's when DTSC's state-of-the-art lab is put through its paces.

Inside DTSC open...slate 'Using science to protect you and the environment'

Nat music

SOT of Carol Wortham – DTSC: 03:09:00 to 03:09:05

Welcome to the Gas Chromatography Mass Spectrometry Department.

VO:

DTSC's Environmental Chemistry Lab, in Berkeley California, is where many samples are sent to be tested.

SOT from Carol Wortham – DTSC: 03:09:09 to 03:09:14

In this department we take large numbers of chemicals and analyze for them.

Butt to// 03:17:17 to 03:17:25

We take samples such as this, which is a sand sample, or something that we would get from a collector...and what we want to do is create a liquid extract out of it.

VO:

The soil sample is mixed with a solvent and shaken to absorb any hazardous chemicals from the soil.

SOT Carol Wortham – DTSC: 03:09:17 to 03:29:27

This is the sample after we've shaken it...because we still have all this soil in it we want to filter it so we can get just the liquid that we want.

VO:

The complicated intricate process of analyzing samples can take hours or even days. But it's just a regular day in the office for Carol and the rest of the highly-skilled scientists at DTSC.

NAT break – think CSI...maybe

Montage of test

SOT Carol Wortham – DTSC: 03:19:27 to 03:19:36

What we end up with is just the solvent that we put in...and hopefully all the different chemicals.

VO:

The liquid in these larger vials are then concentrated down to a smaller size and taken for tests on the Mass Spectrometer or the Mass Spec...

SOT Carol Wortham – DTSC: 03:13:09 to 03:13:16

Which is basically a large oven that contains a column that's used to actually separate out the compounds.

Music NAT pop/ quick montage of GCMS

After NAT pop use b-roll of GCMS over Carol explaining how it works

SOT Carol Wortham – DTSC: 03:13:36 to 03:13:42

We have the instrument take a portion of this sample and inject it into our column.

Butt to// 03:13:46 to 03:13:52

The sample is heated into a vapor and then with helium gas is carried through this column.

Butt to // 03:14:48 to 03:14:52

That's how the mass spec works. It actually creates an ion scan.

Butt to // 03:14:58 to 03:15:08

Therefore, it's almost like a fingerprint for that compound. Only that compound is going to create that kind of scan and that's the way you identify the compounds at the end.

NATS of site

VO:

These test results help staff know what chemicals are present and if they are at hazardous contamination levels. From this information they can determine whether they can stop digging, need to dig further or have to take another approach to the cleanup. So next time you pass a site like this...remember there is a lot of behind the scenes scientific lab work occurring as DTSC continues to protect you and your neighborhood.

DTSC End Slates:

We see green and web address